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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,074	04/19/2005	John Arthur Hohneker	ON/4-32515A	8731

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CORPORATE INTELLECTUAL PROPERTY
ONE HEALTH PLAZA 104/3
EAST HANOVER, NJ 07936-1080

EXAMINER	
FETTEROLF, BRANDON J	
ART UNIT	PAPER NUMBER
1642	

MAIL DATE	DELIVERY MODE
03/01/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/517,074	HOHNEKER ET AL.	
	Examiner	Art Unit	
	BRANDON J. FETTEROLF	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 December 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *32,41 and 43-45* is/are pending in the application.

4a) Of the above claim(s) *43* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *32, 41 and 44-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/23/2009 has been entered.

Claims 32, 41, 43-45 are currently pending.

Claim 43 is withdrawn from consideration as being drawn to non-elected inventions.

Claims 32, 41 and 44-45 are currently under consideration.

Rejections Maintained:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 32, 41 and 44-45 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Vite et al. (WO 99/02514, of record) in view of Nakajima et al. (Experimental Cell Research 1998; 241: 126-133).

Vite et al. teach a combination which comprises (a) a known anti-cancer agent or cytotoxic agent as a second drug and (b) a epothilone derivative which appears to encompass the claimed epothilone derivaties of formula I, wherein the second drug acts in a different phase of the cell cycle (page 2, Compound V and page 10, lines 22-29). Moreover, the WO document teaches that the compounds can be formulated with a pharmaceutical vehicle or diluent (page 11, lines 4-6). Lastly, the WO document teaches that epothilones A and B have been found to exert microtubule-

stabilizing effects similar to paclitaxel and hence cytotoxic activity against rapidly proliferating cells, such as, tumor cells or other hyperproliferative cellular disease (page 1, lines 9-20).

Vite et al. do not explicitly teach that the second drug is a histone deacetylase inhibitor.

Nakajima et al. teach that a compound referred to as FR901228 is a histone deacetylase inhibitor which is remarkably active in vivo against experimental tumors and is currently under clinical investigation (abstract and page 132, 1st column, last paragraph). Moreover, Nakajima et al. teach that FR901228 exerts its effects by blocking cell cycle transition at G1 and G2/M phases (page 129, 1st column, 1st full paragraph).

Thus, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to combine the epothilone derivative as taught by Vite et al. with a histone deacetylase inhibitor as taught by Nakajima et al. One would have been motivated to do so because each have been individually taught in the prior art to be affecting at treating cancer. Hence, the instant situation is amenable to the type of analysis set forth in In re Kerkhoven,205 USPQ 1069 (CCPA 1980) wherein the court held that it is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose in order to for a third composition that is to be used for the very same purpose since the idea of combining them flows logically from their having been individually taught in the prior art. Applying the same logic to the instant process claims, one of ordinary skill in the art would have reasonably expected to treat cancer since both had been demonstrated in the prior art to be effective.

Moreover, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to substitute the epothilone derivatives as taught by Vite et al. for epothilone B in view of the teachings of Vite et al. One would have been motivated to do so because each of the agents have been taught in the prior art to be effective at inhibiting tumors cells.

Claims 32, 41 and 44-45 remain rejected under 35 U.S.C. 103(a) as being unpatentable over O'Reilly et al. (WO 99/43320 A1, 1999, of record) in view of Nakajima et al. (Experimental Cell Research 1998; 241: 126-133).

O'Reilly et al .teach a combination comprising an epothilone and one or more chemotherapeutic agents in the presence or absence of one or more pharmaceutically acceptable carrier materials, as a preparation for simultaneous or chronologically staggered administration to a

warm-blooded animal (page 9, last paragraph to page 10, 2nd paragraph). With regards to the epothilone, the WO document teaches that the epothilones include, but are not limited to, epothilone B (page 9, last paragraph). With regards chemotherapeutics, the WO document teaches that the chemotherapeutics include, but are not limited to, 5-fluoruoracil, an anti-androgen or mitoxantrone, an antiestrogen like letrozole, e.g., an aromatase inhibitor, and the taxane class of microtubule stabilizing agents (page 12, last paragraph). In particular, the WO document teaches that chemotherapeutics include, but are not limited to, doxorubicin, e.g., a topoisomerase II inhibitor (page 17, First paragraph). Moreover, the WO document teaches that the combination can be in the form of a kit (page 18, 1st full and 2nd paragraphs).

O'Reilly et al. do not explicitly teach that the second drug is a histone deacetylase inhibitor.

Nakajima et al. teach that a compound referred to as FR901228 is a histone deacetylase inhibitor which is remarkably active in vivo against experimental tumors and is currently under clinical investigation (abstract and page 132, 1st column, last paragraph). Moreover, Nakajima et al. teach that FR901228 exerts its effects by blocking cell cycle transition at G1 and G2/M phases (page 129, 1st column, 1st full paragraph).

Thus, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to combine the epothilone derivative as taught by O'Reilly et al. with a histone deacetylase inhibitor as taught by Nakajima et al. One would have been motivated to do so because each have been individually taught in the prior art to be affecting at treating cancer. Hence, the instant situation is amenable to the type of analysis set forth in In re Kerkhoven,205 USPQ 1069 (CCPA 1980) wherein the court held that it is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose in order to for a third composition that is to be used for the very same purpose since the idea of combining them flows logically from their having been individually taught in the prior art. Applying the same logic to the instant process claims, one of ordinary skill in the art would have reasonably expected to treat cancer since both had been demonstrated in the prior art to be effective.

In response to these rejections, Vite et al. discloses that epothilone derivatives exert their effects at the G2-M phase and suggests combining epothilone derivatives with a second drug that acts in a different phase of the cell cycle. Nakajima et al. discloses a histone deacetylase, FR901228, and that it exerts its effect at G1 and G2-M phase. Accordingly, in view of the teachings of Vite,

Applicants contend that one of skill would not choose to combine epothilone B with a histone deacetylase inhibitor because both exert their effects at the G2-M phase. Additionally, Applicants provide a copy of Funio et al. Mol. Cancer Therapy 2003; 2: 971-984 which provides data demonstrating that LAQ824, a histone deacetylase inhibit, enhances apoptosis of breast cancer cells induced by chemotherapeutic agents, including epothilone B. As such, Applicants contend that this data demonstrates the patentability of the present claims

These arguments have been carefully considered, but are not found persuasive.

In response to Applicants arguments, the Examiner acknowledges and does not dispute Applicants contention that both compounds taught by the prior art exert their effect at the G2-M phase. However, the Examiner recognizes that Nakajima et al. also teach that FR901228 also exerts its activity during the G1 phase, e.g., a different phase of the cell cycle than epothilone. As such, Applicants arguments are not persuasive. With regards to the reference provided, the Examiner acknowledges and has carefully reviewed this reference. However, it is unclear how this demonstrates patentability of the present claims. In view of Applicants expansion on how the reference demonstrates patentability, the Examiner is left to infer that Applicants are asserting that the reference shows unexpected results. If this is the case, Applicants are reminded that referenced material does not appear to be commensurate in scope with the present claims which encompass any histone deacetylase inhibitor, wherein the reference only discloses a single. Accordingly, the rejection is maintained.

Therefore, No claim is allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRANDON J. FETTEROLF whose telephone number is (571)272-2919. The examiner can normally be reached on Monday through Friday from 7:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Helms can be reached on 571-272-0832. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brandon J Fetterolf
Primary Examiner
Art Unit 1642

/Brandon J Fetterolf/
Primary Examiner, Art Unit 1642